



Course Outline

2026-2027 Catalog

MFG 26 - Intermediate Modeling to Production

Catalog Description

Transfer Status: CSU

Prerequisite: MFG 10, MFG 12, MFG 14, MFG 16

Corequisite: MFG 20, MFG 22, MFG 24

Unit(s): 3.00

Lecture: 34.00 Contact hours/68.00 Out of class hours/102.00 Total hours/2.00 Unit(s)

Lab: 51.00 Contact hours/0.00 Out of class hours/51.00 Total hours/1.00 Unit(s)

Total: 85.00 Contact hours/68.00 Out of class hours/153.00 Total hours/3.00 Unit(s)

Course Description: This course is designed to develop intermediate skills related to modeling to production as it relates to the advanced manufacturing. Emphasis will be placed on developing basic safety skills, trade math, file types and conversions, applications of modeling and production software, equipment selection, data input, and production application. These areas of instruction will be reinforced by hands-on application in several performance lab exercises.

Objectives

Upon successful completion of this course, the student should be able to:

1. Practice safety skills that are required on job-sites.
2. Explain the basic principles of production software used in advanced manufacturing.
3. Describe the principles of manufacturing modeling software.
4. Identify types of materials and different uses within the advanced manufacturing industry.
5. Convert units of measurement from the standard system to the metric systems, and vice-versa.

Course Content

Topic Titles / Suggested Time Topic

Lecture

<u>Topics</u>	<u>Lec Hrs</u>
Introduction and Safety	2.00
Communication Skills	2.00
Intermediate Computer Operations	2.00
File Types and Conversions	2.00
Applications of Manufacturing Modeling Software	2.00
Application of Production Software	2.00
Selection of Base Materials	2.00
Equipment Selection and Data Input	4.00
Production Processing	2.00
Production Processing	2.00
Cost Estimating	2.00
Application of Production	4.00
Equipment Maintenance & Troubleshooting	2.00
Drawings and Work Orders	2.00
Quality Assurance	2.00

Total Hours: 34.00

Lab

<u>Topics</u>	<u>Lab Hrs</u>
Introduction and Safety	2.00
Communication Skills	2.00
Intermediate Computer Operations	2.00
File Types and Conversions	4.00
Applications of Manufacturing Modeling Software	5.00
Application of Production Software	5.00
Selection of Base Materials	4.00
Equipment Selection and Data Input	5.00

Topics	Lab Hrs
Production Processing	5.00
Cost Estimating	4.00
Application of Production	4.00
Equipment Maintenance & Troubleshooting	3.00
Drawings and Work Orders	3.00
Quality Assurance	3.00
Total Hours: 51.00	

Methods of Instruction

- A. Demonstrations
- B. Homework: Students are required to complete two hours of outside-of-class homework for each hour of lecture
- C. Laboratory Experiments
- D. Lecture
- E. Multimedia Presentations

Methods of Evaluation

- A. Exams/Tests
- B. Quizzes
- C. Homework
- D. Lab Projects

Examples of Assignments

Reading Assignments

1. Read module 6 and be prepared to discuss in class.
2. Read assigned trade journal article and be prepared to discuss in class.

Writing Assignments

1. Write an order of operations for converting a file from solid works to a DXF format.
2. Write a two-page essay, explaining how the trade journal article can be implemented in workplace safety and how it relates to the class.

Out-of-Class Assignments

1. Research online the proper process for equipment selection of an assigned part using manufactures publications and be prepared to discuss in class.
2. Research OSHA publications for the use and safety of shop equipment properly and write a one-page essay.

Recommended Materials of Instruction

Schmid, S., & Kalpakjian, S. (2014). Manufacturing Engineering and Technology. *Pearson, 7th.*

Other Learning Materials

All tools listed in the Advanced Manufacturing Program Guide.

Minimum Qualifications

Machine Tool Technology
Manufacturing Technology

Created/Revised by: Peacock, Miles

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